RHIC Retreat 2002

Machine Reliability

“Summaries of System Hardware Plans”

Quench Detection

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RHIC Retreat 2002 - Quench Detection

- Existing Hardware
  - Connect Q.D. UPS to control system to monitor status.
  - General Maintenance – Cleaning filters and tighten Q.D. chassis high current p.s. connections.
  - Re-work ceramic feedthroughs in the arc region used by the Q.D. voltage taps.

- New Hardware
  - Install 4 new chassis for spin rotators

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- Software
  - The time stamps in alarm messages and file descriptors will be changed from the time the file is saved to that of the time the Q.D. circuit tripped.
  - Alarm messages will be sent as soon as a Q.D. trips for all circuits in a Q.D. This requires that while one circuit is dumping quench data another circuit can still output an alarm.
  - Develop routines that will determine if a real quench has occurred for sextupole, trim quad, or helical magnets

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- Software (cont'd)
  - Make changes to the DX magnet quench detection algorithm that looks for a quench right at the start of the current dump. An alternative to this could be a hardware change in the DX and D0 quench protection circuit that will allow for a slower current shut off.
  - Develop a new application that can load a different inductance table easily and without using the quench detection data base editor.
  - Investigate new methods that can compensate for induced voltages in voltage tap circuits that go through the helical magnets.